1. (Currently amended) A method of managing memory in a storage control unit including first and second clusters, each cluster including a processor, NVS memory and cache memory, a portion of each of the NVS memory and cache memory of each cluster allocated to buffers, the method comprising:

    commencing a dual-cluster initial microcode load (IML) of the storage control unit;

    determining the size ~~LNB~~L1 of the NVS buffer of the cluster having the larger NVS buffer;

    allocating a portion of the cache of the first cluster to a buffer equal in size to ~~LNB~~L1;

    allocating a portion of the cache of the second cluster to a buffer equal in size to ~~LNB~~L1;

    determining the size ~~SNB~~S1 of the NVS buffer of the cluster having the smaller NVS buffer;

    completing the dual-cluster IML;

    initializing the NVS buffers and the cache buffers of the first and second clusters to a size equal to ~~SNB~~S1;

    operating the storage control unit in a dual-cluster mode;

    performing a failback-to-service mode for the first cluster;

    changing the amount of NVS and cache memory installed in the first cluster;

    commencing a single-cluster IML of the first cluster;

    allocating a portion of the NVS of the first cluster to an NVS buffer;

    determining a new size ~~LNB~~L2 of the NVS buffer of the cluster having the larger NVS buffer;

    allocating a portion of the cache of the first cluster to a buffer equal in size to ~~LNB~~L2;

    determining the size ~~SNB~~S2 of the NVS buffer of the cluster having the smaller NVS buffer;

    commencing a failback-to-dual mode of the storage control unit;

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initializing the NVS buffers and the cache buffers of the first and second clusters to a size equal to ~~SNB~~S2; and

operating the storage control unit in the dual-cluster mode.

2.   (Currently amended) The method of claim 1, further comprising:

performing a failback-to-service mode for the second cluster;

changing the amount of NVS and cache memory installed in the second cluster;

commencing a single-cluster IML of the second cluster;

allocating a portion of the NVS of the second cluster to an NVS buffer;

determining a new size ~~LNB~~L3 of the NVS buffer of the cluster having the larger NVS buffer;

allocating a portion of the cache of the second cluster to a buffer equal in size to ~~LNB~~L3;

determining the size ~~SNB~~S3 of the NVS buffer of the cluster having the smaller NVS buffer;

commencing a failback-to-dual mode of the storage control unit;

initializing the NVS buffers and the cache buffers of the first and second clusters to a size equal to ~~SNB~~S3; and

operating the storage control unit in the dual-cluster mode.

3.   (Unchanged) The method of claim 1, further comprising destaging modified data from the NVS and cache of the first and second clusters during the failback-to-service mode.

4.   (Unchanged) The method of claim 1, further comprising operating the second cluster in a single cluster mode during the failback-to service mode for the first cluster.

5.   (Currently amended) A storage control unit in a data storage system, comprising:

a first cluster, comprising:

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a first processor;

a first NVS memory associated with the first processor and having a portion allocated to a first NVS buffer; and

a first cache memory associated with the first processor; and
a second cluster, comprising:

a second processor coupled to the first processor;

a second NVS memory associated with the second processor and having a portion allocated to a second NVS buffer; and

a second cache memory associated with the second processor;
the first and second processors programmed for:

commencing a dual-cluster initial microcode load (IML);

determining the size ~~LNB~~L1 of the NVS buffer of the cluster having the larger NVS buffer;

allocating a portion of the associated cache to a cache buffer equal in size to ~~LNB~~L1;

determining the size ~~SNB~~S1 of the NVS buffer of the cluster having the smaller NVS buffer; and

completing the dual-cluster IML;
the first processor further programmed for, following completion of the dual-cluster IML:

performing a failback-to-service mode for the first cluster;

identifying a change in the amount of NVS and cache memory installed in the first cluster;

commencing a single-cluster IML of the first cluster;

determining a new size ~~LNB~~L2 of the NVS buffer of the cluster having the larger NVS buffer;

allocating a portion of the cache of the first cluster to a buffer equal in size to ~~LNB~~L2;

determining the size ~~SNB~~S2 of the NVS buffer of the cluster having the smaller NVS buffer; and

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determining the size ~~SNB~~S2 of the NVS buffer of the cluster having
the smaller NVS buffer; and

the first and second processors further programmed for, following completion of the failback-to-service of the first cluster:

operating the storage control unit in a single-cluster mode;

initializing the NVS buffers and the cache buffers to a size equal to ~~SNB~~S1; and

commencing a failback-to-dual mode of the storage control unit;

initializing the NVS buffers and the cache buffers of the first and second clusters to a size equal to ~~SNB~~S2; and

operating the storage control unit in the dual-cluster mode.

6. (Currently amended) The data storage unit of claim 5, the second processor further programmed for, following commencement of the dual-cluster mode:

performing a failback-to-service mode for the second cluster;

identifying a change in the amount of NVS and cache memory installed in the second cluster;

commencing a single-cluster IML of the second cluster;

allocating a portion of the NVS of the second cluster to an NVS buffer;

determining a new size ~~LNB~~L3 of the NVS buffer of the cluster having the larger NVS buffer;

allocating a portion of the cache of the second cluster to a buffer equal in size to ~~LNB~~L3; and

determining the size ~~SNB~~S3 of the NVS buffer of the cluster having the smaller NVS buffer.

7. (Unchanged) The data storage unit of claim 6, the first and second processors further programmed for, following completion of the failback-to-service of the second cluster:

commencing a failback-to-dual mode of the storage control unit;

initializing the NVS buffers and the cache buffers of the first and second clusters to a size equal to ~~SNB~~S3; and

operating the storage control unit in the dual-cluster mode.

8.   (Unchanged) The data storage unit of claim 5, the first and second processors further programmed for destaging modified data from the NVS and cache of the first and second clusters during the failback-to-service mode for a cluster.

9.   (Unchanged) The method of claim 5, the first and second processors further programmed for operating the second cluster in a single cluster mode during the failback-to service mode for the first cluster.

10.   (Currently amended) Apparatus for dynamically reconfiguring memory in a storage control unit, comprising:

a first cluster, comprising:

a first processor;

a first NVS memory associated with the first processor and having a portion allocated to a first NVS buffer; and

a first cache memory associated with the first processor; and

a second cluster, comprising:

a second processor coupled to the first processor;

a second NVS memory associated with the second processor and having a portion allocated to a second NVS buffer; and

a second cache memory associated with the second processor; and

a memory reconfiguration procedure executed by the first and second processors comprising instructions for:

performing a dual-cluster initial microcode load (IML);

determining the size ~~LNB~~L1 of the NVS buffer of the cluster having the larger NVS buffer;

allocating a portion of the cache of the first cluster to a buffer equal in size to ~~LN~~BL1;

allocating a portion of the cache of the second cluster to a buffer equal in size to ~~LN~~BL1;

determining the size ~~SN~~BS1 of the NVS buffer of the cluster having the smaller NVS buffer;

initializing the NVS buffers and the cache buffers of the first and second clusters to a size equal to ~~SN~~BS1;

operating the apparatus in a dual-cluster mode;

performing a failback-to-service mode for the first cluster;

changing the amount of NVS and cache memory installed in the first cluster;

commencing a single-cluster IML of the first cluster;

allocating a portion of the NVS of the first cluster to an NVS buffer;

determining a new size ~~LN~~BL2 of the NVS buffer of the cluster having the larger NVS buffer;

allocating a portion of the cache of the first cluster to a buffer equal in size to ~~LN~~BL2;

determining the size ~~SN~~BS2 of the NVS buffer of the cluster having the smaller NVS buffer;

commencing a failback-to-dual mode of the apparatus;

initializing the NVS buffers and the cache buffers of the first and second clusters to a size equal to ~~SN~~BS2; and

operating the apparatus in the dual-cluster mode.

11.   (Currently amended) The apparatus of claim 10, the memory reconfiguration process further comprising instructions for:

performing a failback-to-service mode for the second cluster;

changing the amount of NVS and cache memory installed in the second cluster;

commencing a single-cluster IML of the second cluster;

allocating a portion of the NVS of the second cluster to an NVS buffer;

determining a new size ~~LNB~~L3 of the NVS buffer of the cluster having the larger NVS buffer;

allocating a portion of the cache of the second cluster to a buffer equal in size to ~~LNB~~L3;

determining the size ~~SNB~~S3 of the NVS buffer of the cluster having the smaller NVS buffer;

commencing a failback-to-dual mode of the storage control unit;

initializing the NVS buffers and the cache buffers of the first and second clusters to a size equal to ~~SNB~~S3; and

operating the storage control unit in the dual-cluster mode.

12.   (Unchanged)   The apparatus of claim 10, further comprising instructions for destaging modified data from the NVS and cache of the first and second clusters during the failback-to-service mode for a cluster.

13.   (Unchanged)   The apparatus of claim 10, further comprising instructions for operating the second cluster in a single cluster mode during the failback-to service mode for the first cluster.

14.   (Currently amended)   A computer program product of a computer readable medium usable with a programmable computer, the computer program product having computer-readable code embodied therein for dynamically reconfiguring memory in a storage control unit, the computer-readable code comprising instructions for:

commencing a dual-cluster initial microcode load (IML) of the storage control unit;

determining the size ~~LNB~~L1 of the NVS buffer of the cluster having the larger NVS buffer;

allocating a portion of the cache of the first cluster to a buffer equal in size to ~~LNB~~L1;

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allocating a portion of the cache of the second cluster to a buffer equal in size to ~~LNB~~L1;

determining the size ~~SNB~~S1 of the NVS buffer of the cluster having the smaller NVS buffer;

completing the dual-cluster IML;

initializing the NVS buffers and the cache buffers of the first and second clusters to a size equal to ~~SNB~~S1;

operating the storage control unit in a dual-cluster mode;

performing a failback-to-service mode for the first cluster;

changing the amount of NVS and cache memory installed in the first cluster;

commencing a single-cluster IML of the first cluster;

allocating a portion of the NVS of the first cluster to an NVS buffer;

determining a new size ~~LNB~~L2 of the NVS buffer of the cluster having the larger NVS buffer;

allocating a portion of the cache of the first cluster to a buffer equal in size to ~~LNB~~L2;

determining the size ~~SNB~~S2 of the NVS buffer of the cluster having the smaller NVS buffer;

commencing a failback-to-dual mode of the storage control unit;

initializing the NVS buffers and the cache buffers of the first and second clusters to a size equal to ~~SNB~~S2; and

operating the storage control unit in the dual-cluster mode.

15.   (Currently amended) The computer program product of claim 14, the instructions further comprising instructions for:

performing a failback-to-service mode for the second cluster;

changing the amount of NVS and cache memory installed in the second cluster;

commencing a single-cluster IML of the second cluster;

allocating a portion of the NVS of the second cluster to an NVS buffer;

determining a new size ~~LNBL~~L3 of the NVS buffer of the cluster having the larger NVS buffer;

allocating a portion of the cache of the second cluster to a buffer equal in size to ~~LNBL~~L3;

determining the size ~~SNBS~~S3 of the NVS buffer of the cluster having the smaller NVS buffer;

commencing a failback-to-dual mode of the storage control unit;

initializing the NVS buffers and the cache buffers of the first and second clusters to a size equal to ~~SNBS~~S3; and

operating the storage control unit in the dual-cluster mode.

16.   (Unchanged) The computer program product of claim 14, the instructions further comprising instructions for destaging modified data from the NVS and cache of the first and second clusters during commencing a failback-to-service mode for a cluster.

17.   (Unchanged) The computer program product of claim 14, the instructions further comprising instructions for operating the second cluster in a single cluster mode during the failback-to service mode for the first cluster.